

Belvedere:
Jerry Butler

July 22, 2004

Corte Madera:
Melissa Gill

TO: Transportation Authority of Marin Commissioners

Fairfax:
Lew Tremaine

RE: Caltrans 2003 Annual HOV Lane Report – Agenda Item 3b

Dear Commissioners:

Larkspur:
Joan Lundstrom

Background

Mill Valley:
Dick Swanson

Caltrans District 4 recently issued its annual HOV Report for the San Francisco Bay Area. The report contains important information covering both High Occupancy Vehicle (HOV) and mixed-flow lanes on the San Francisco Bay Area freeway system. Morning and afternoon peak-hour traffic performance data for the calendar year 2003 for the two segments of Highway 101 with HOV lanes are provided. The two segments of Highway 101 where data collection occurred are: (1) Highway 37 to North San Pedro Road, and (2) the Greenbrae Interchange to Richardson Bay Bridge. Data collection for this report occurs twice annually – once in the Spring and once in the Fall – when normal commute traffic patterns and conditions generally occur.

Novato:
Pat Eklund

Ross:
Tom Byrnes

San Anselmo:
Peter Breen

Excerpts from the HOV Report pertaining to Marin County are summarized below and attached to this staff report for reference. The entire report can be found at: <http://www.dot.ca.gov/dist4/documents/hovleport2003.pdf>.

San Rafael:
Al Boro

Sausalito:
Amy Belser

Summary of HOV Report Traffic Performance Data for Marin County

Tiburon:
Alice Fredericks

Overall, while HOV lanes may be less congested and carry less vehicles during peak hours, the collected data clearly demonstrate that HOV lanes successfully operate and improve mobility in Marin by providing higher vehicle occupancy rates, shorter travel times, and faster speeds than mixed-flow lanes, as follows:

County of Marin:
Susan Adams
Hal Brown
Steve Kinsey
Cynthia Murray
Annette Rose

- ◇ An HOV lane carries substantially more people than a congested mixed-flow lane. Marin HOV lanes carry an average of 2,698 people per hour during peak hours. A typical mixed-flow lane along an HOV lane in Marin carries an average of only 2,181 people per hour, or 19% less than the HOV lane.
- ◇ When compared to vehicles traveling on mixed-flow lanes, vehicles on HOV lanes in Marin saved an average of 12 minutes on their southbound morning commute and 5 minutes on their northbound afternoon commute, over the length of the HOV corridors.
- ◇ Average vehicle speeds on Marin HOV lanes were 46 miles per hour (mph) during the southbound morning commute and 54 mph during the northbound afternoon commute, while average speeds on Marin mixed-flow lanes were 30 mph during the southbound morning commute and 43 mph during the northbound afternoon commute.

It is likely that these numbers will improve even more when the HOV Gap Closure project is completed and continuous HOV lanes are provided from Highway 37 to the Richardson Bay Bridge.

Respectfully Submitted,

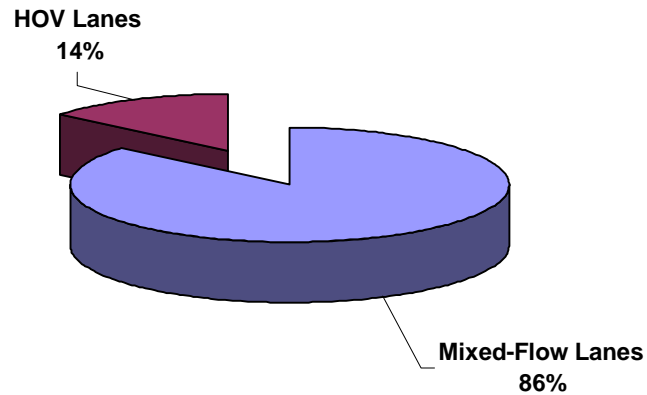
Dean R. Powell, AICP
Principal Transportation Planner

Attachment:

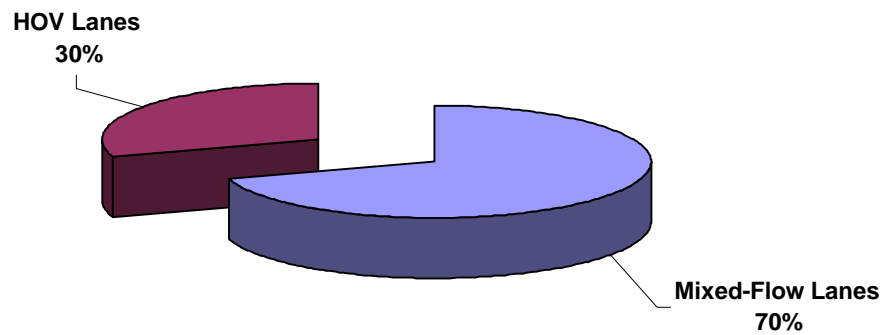
1. Peak-hour Volume Comparison Charts – HOV Lanes vs. Mixed-Flow Lanes for Highway 101, Marin County
2. Excerpts from the 2003 Caltrans District 4 HOV Report Pertaining to Highway 101, Marin County

**Peak-Hour Volume Comparisons – HOV Lanes vs. Mixed-Flow Lanes
Highway 101, Marin County of Marin**

VEHICLES



PEOPLE



DATA SUMMARIES

- **HOV Lane Peak Hour Volumes**
 - **HOV & Non-HOV Lane Peak Hour Comparisons**
 - **HOV Lane Peak Period Violation Rates**
 - **HOV Lane Peak Hour Time Savings and
Average Speeds**
-

HOV LANE PEAK HOUR VOLUMES

			A.M. Peak Hr (veh)	P.M. Peak Hr (veh)
ALA-80	WB	Bay Bridge Toll Plaza	3512	1122
ALA-80	WB	Contra Costa County Line to Powell St	1512	N/A
	EB	Port of Oakland O.C. to Contra Costa Co. Line	N/A	1295
ALA-84	WB	Newark Blvd to Dumbarton Bridge Toll Plaza	1043	337
ALA-92	WB	Hesperian Blvd to San Mateo Bridge Toll Plaza	1034	484
ALA-680	SB	Route 84 to Route 237 Calaveras Blvd.	575	366
ALA-880	SB	Marina Blvd to Whipple Road	1169	1289
		Whipple Road to Mission Blvd.	844	731
	NB	Mission Blvd to Whipple Road	402	890
		Whipple Road to South of Rte 238 I/C	1215	1254
ALA-880	NB	16th St to SFOBB Toll Plaza	630	125
CC-04	WB	West of Railroad Ave. to Port Chicago Hwy	1100	No HOV
	EB	Port Chicago Hwy to West of Railroad Ave.	No HOV	771
CC-80	WB	Route 4 to Alameda County Line	1514	N/A
	EB	Alameda County Line to Route 4	N/A	1118
CC-680	SB	Livorna Rd. to Alcosta Blvd.	824	870
	NB	Alcosta Blvd. to Livorna Rd.	868	1266
MRN-101	SB	Rte 37 to N. San Pedro Rd	1317	No HOV
		Greenbrae I/C to Richardson Bay Bridge	596	No HOV
	NB	Richardson Bay Bridge to Greenbrae I/C	No HOV	654
		N. San Pedro Rd to Rte 37	No HOV	843
SCL-85	SB	Rte 101 (Mountain View) to Rte 280	N/A	608
		Rte 280 to Almaden Expwy	N/A	743
		Almaden Expwy to Rte 101 (So. San Jose)	N/A	577
	NB	Rte 101 (So. San Jose) to Almaden Expwy	581	N/A
		Almaden Expwy to Rte 280	1085	N/A
		Rte 280 to Rte 101 (Mountain View)	510	N/A
SCL-101	SB	San Mateo Co. Line to Ellis St	628	944
		Ellis St to Guadalupe Pkwy	N/A	1272
		Guadalupe Pkwy to 101/280/680 I/C	N/A	640
		101/280/680 I/C to Bernal Rd	N/A	732
		Bernal Rd to Cochrane Rd	N/A	653
	NB	Cochrane Road to Bernal Road	678	N/A
		Bernal Rd to 101/280/680 I/C	1071	N/A
		101/280/680 I/C to Guadalupe Pkwy	1554	N/A
		Guadalupe Pkwy to Ellis St	880	N/A
		Ellis St to San Mateo Co. Line	798	1095

PEAK HOUR HOV & non-HOV LANE COMPARISONS

				% of all vehicles		% of all Persons			
				in HOVL	in Non-HOVL	in HOVL	in Non-HOVL	Number of Non-HOV Lanes	in Non-HOVL (Avg per Lane)
ALA-80	WB	Bay Bridge Toll Plaza	AM	* 40%	** 60%	* 67%	** 33%	18	2%
			PM	* 14%	** 86%	* 33%	** 67%	18	4%
ALA-80	WB	Contra Costa County Line to Powell Street	AM	17%	83%	37%	63%	4	16%
			PM	N/A	N/A	N/A	N/A	4	N/A
	EB	Port of Oakland O.C. to Contra Costa Co. Line	AM	N/A	N/A	N/A	N/A	4	N/A
			PM	15%	85%	36%	64%	4	16%
ALA-84	WB	Newark Blvd to Dumbarton Bridge Toll Plaza	AM	25%	75%	43%	57%	3	19%
			PM	22%	78%	43%	57%	3	19%
ALA-92	WB	Hesperian Blvd to San Mateo Bridge Toll Plaza	AM	24%	76%	43%	57%	3	19%
			PM	16%	84%	33%	67%	3	22%
ALA-680	SB	Route 84 to Route 237 Calaveras Blvd	AM	9%	91%	18%	82%	3	27%
			PM	9%	91%	18%	82%	3	27%
ALA-880	SB	Marina Blvd to Whipple Rd	AM	21%	79%	39%	61%	3	20%
			PM	21%	79%	37%	63%	3	21%
		Whipple Rd to Mission Blvd	AM	14%	86%	29%	71%	3	24%
			PM	12%	88%	23%	77%	3	26%
	NB	Mission Blvd to Whipple Rd	AM	8%	92%	16%	84%	3	28%
			PM	16%	84%	29%	71%	3	24%
		Whipple Rd to South of Rte 238 I/C	AM	25%	75%	44%	56%	3	19%
			PM	20%	80%	37%	63%	3	21%
ALA-880	NB	16th Street to SFOBB	AM	33%	67%	57%	43%	2	22%
			PM	8%	92%	18%	82%	2	41%
CC-04	WB	W of Railroad Ave to Port Chicago Hwy	AM	22%	78%	35%	65%	3	22%
	EB	Port Chicago to W of Railroad Avenue	PM	22%	78%	34%	66%	3	22%
CC-80	WB	Route 4 to Alameda County Line	AM	26%	74%	49%	51%	3	17%
			PM	N/A	N/A	N/A	N/A	3	N/A
	EB	Alameda County Line to Route 4	AM	N/A	N/A	N/A	N/A	3	N/A
			PM	16%	84%	35%	65%	3	22%
CC-680	SB	Livorna Rd to Alcosta Blvd	AM	14%	86%	29%	71%	3	24%
			PM	14%	86%	24%	76%	3	25%
	NB	Alcosta Blvd to Livorna Rd	AM	14%	86%	30%	70%	3	23%
			PM	19%	81%	35%	65%	3	22%
MRN-101	SB	Rte 37 to N. San Pedro Rd	AM	21%	79%	37%	63%	3	21%
		Greenbrae I/C to Richardson Bay Brdg	AM	11%	89%	25%	75%	3	25%
	NB	Richardson Bay Brdg to Greenbrae I/C	PM	12%	88%	31%	69%	3	23%
		N. San Pedro Rd to Rte 37	PM	11%	89%	25%	75%	3	25%
SCL-85	SB	Rte 101 (Mtn View) to Rte 280	AM	N/A	N/A	N/A	N/A	2	N/A
			PM	14%	86%	23%	77%	2	38%
		Rte 280 to Almaden Expwy	AM	N/A	N/A	N/A	N/A	2	N/A
			PM	17%	83%	29%	71%	2	35%
		Almaden Expwy to Rte 101 (So. San Jose)	AM	N/A	N/A	N/A	N/A	2	N/A
			PM	13%	87%	23%	77%	2	39%
	NB	Rte 101 (So. San Jose) to Almaden Expwy	AM	17%	83%	30%	70%	2	35%
			PM	N/A	N/A	N/A	N/A	2	N/A
		Almaden Expwy to Rte 280	AM	26%	74%	42%	58%	2	29%
			PM	N/A	N/A	N/A	N/A	2	N/A
		Rte 280 to Rte 101 (Mtn View)	AM	14%	86%	24%	76%	2	38%
			PM	N/A	N/A	N/A	N/A	2	N/A

HOV LANE PEAK PERIOD VIOLATION RATE SUMMARY

			A.M.	P.M.
ALA-80	WB	Bay Bridge Toll Plaza	8.2%	14.7%
ALA-80	WB	Contra Costa County Line to Powell St	4.4%	N/A
	EB	Port of Oakland O.C. to Contra Costa Co. Line	N/A	9.3%
ALA-84	WB	Newark Blvd to Dumbarton Bridge Toll Plaza	0.9%	1.1%
ALA-92	WB	Hesperian Blvd to San Mateo Bridge Toll Plaza	1.3%	1.5%
ALA-680	SB	Route 84 to Route 237 Calaveras Blvd	0.2%	4.4%
ALA-880	SB	Marina Blvd to Whipple Road	3.7%	6.0%
		Whipple Road to Mission Blvd.	3.5%	4.2%
	NB	Mission Blvd to Whipple Road	2.5%	3.1%
		Whipple Road to South of Rte 238 I/C	1.4%	3.0%
ALA-880	NB	16th St to SFOBB Toll Plaza	5.6%	3.5%
CC-04	WB	West of Railroad Ave to Port Chicago Hwy.	3.6%	N/A
	EB	Port Chicago Hwy to West of Railroad Ave	N/A	1.9%
CC-80	WB	Rte 4 to Alameda County Line	27.2%	N/A
	EB	Alameda County Line to Rte 4	N/A	11.5%
CC-680	SB	Livorna Rd. to Alcosta Blvd.	0.6%	2.4%
	NB	Alcosta Blvd. to Livorna Rd.	5.0%	3.4%
MRN-101	SB	Rte 37 to N. San Pedro Rd	2.2%	No HOV
		Greenbrae I/C to Richardson Bay Bridge	3.4%	No HOV
	NB	Richardson Bay Bridge to Greenbrae I/C	No HOV	2.4%
		N. San Pedro Rd to Rte 37	No HOV	3.2%
SCL-85	SB	Rte 101 (Mountain View) to Rte 280	N/A	1.6%
		Rte 280 to Almaden Expwy	N/A	2.3%
		Almaden Expwy to Rte 101 (So. San Jose)	N/A	0.6%
	NB	Rte 101 (So. San Jose) to Almaden Expwy	0.0%	N/A
		Almaden Expwy to Rte 280	0.0%	N/A
		Rte 280 to Rte 101 (Mountain View)	0.8%	N/A
SCL-101	SB	San Mateo Co. Line to Ellis St	7.0%	1.4%
		Ellis St to Guadalupe Pkwy	N/A	3.6%
		Guadalupe Pkwy to 101/280/680 I/C	N/A	0.5%
		101/280/680 I/C to Bernal Rd	N/A	1.5%
		Bernal Rd to Cochrane Road	N/A	1.1%
	NB	Cochrane Rd to Bernal Rd	0.0%	N/A
		Bernal Rd to 101/280/680 I/C	1.0%	N/A
		101/280/680 I/C to Guadalupe Pkwy	2.6%	N/A
		Guadalupe Pkwy to Ellis St	0.6%	N/A
		Ellis St to San Mateo Co. Line	5.8%	7.2%

HOV LANE PEAK HOUR TIME SAVINGS AND AVERAGE SPEEDS

				Travel Time (minutes) Non-HOVL	Travel Time (minutes) HOVL	HOVL Time Saving (minutes)	Avg. Speed (mph) Non-HOVL	Avg. Speed (mph) HOVL
ALA-80	WB	Bay Bridge Toll Plaza	AM	17	4	13	5	33
			PM	11	2	9	14	65
ALA-80	WB	Contra Costa County Line to Powell St	AM	9	7	2	26	36
			PM	10	4	6	29	65
	* EB	Port of Oakland O.C. to Contra Costa Co. Line	AM	5	5	0	65	65
			PM	10	5	5	17	65
ALA-84	WB	Newark Blvd to Dumbarton Bridge Toll Plaza	AM	3	2	1	54	60
			PM	3	2	1	54	60
ALA-92	WB	Hesperian Blvd to San Mateo Bridge Toll Plaza	AM	3	3	0	60	60
			PM	3	3	0	60	60
ALA-680	SB	Route 84 to Route 237 Calaveras Blvd.	AM	16	13	3	53	65
ALA-880	SB	Marina Blvd. to Whipple Road	AM	26	8	18	20	65
			PM	13	8	5	40	65
		Whipple Road to Mission Blvd	AM	31	11	20	23	65
			PM	15	11	4	48	65
	NB	Mission Blvd. to Whipple Road	AM	16	11	5	45	65
			PM	22	11	11	32	65
		Whipple Road to South of Rte 238 I/C	AM	12	4	8	24	65
			PM	15	4	11	20	65
ALA-880	NB	16th St to SFOBB Toll Plaza	AM	8	3	5	5	44
			PM	3	2	1	44	65
CC-04	WB	West of Railroad to Port Chicago Hwy	AM	11	6	5	35	65
	EB	Port Chicago Hwy to West of Railroad Ave.	PM	14	6	8	30	65
CC-80	WB	Rte 4 to Alameda County Line	AM	21	13	8	23	45
			PM	11	11	0	65	65
	EB	Alameda County Line to Rte 4	AM	10	10	0	65	65
			PM	19	10	9	28	65
CC-680	SB	Livorna Rd to Alcosta Blvd	AM	16	11	5	45	65
			PM	15	11	4	48	65
	NB	Alcosta Blvd to Livorna Rd	AM	16	12	4	48	65
			PM	20	12	8	39	65
MRN-101	SB	Rte 37 to N. San Pedro Rd	AM	24	14	10	15	26
		Greenbrae I/C to Richardson Bay Brdg	AM	5	3	2	44	65
	NB	Richardson Bay Brdg to Greenbrae I/C	PM	10	5	5	21	42
		N. San Pedro Rd to Rte 37	PM	5	5	0	65	65
SCL-85	SB	Rte 101 (Mtn View) to Rte 280	AM	6	5	1	54	65
			PM	13	5	8	25	65
		Rte 280 to Almaden Expwy	AM	11	11	0	65	65
			PM	23	11	12	34	65
		Almaden Expwy to Rte 101 (So. San Jose)	AM	6	5	1	54	65
			PM	7	5	2	46	65
	NB	Rte 101 (So. San Jose) to Almaden Expwy	AM	14	6	8	28	65
			PM	6	6	0	65	65
		Almaden Expwy to Rte 280	AM	26	13	13	29	60
			PM	13	12	1	60	65
		Rte 280 to Rte 101 (Mtn View)	AM	16	5	11	20	65
			PM	6	5	1	54	65

NOTE: *Time Savings shown on EB ALA-80 is from Powell St to Contra Costa County Line only.

MARIN-101

Greenbrae I/C to Richardson Bridge

Southbound - A.M.

Typical data for 2003 ⁽⁵⁾

VEHICLES	PEAK PERIOD ⁽⁴⁾ 6:30 - 8:30 AM		PEAK HOUR 7:30 - 8:30 AM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	50	20	30	12
Buses	29	58	19	30
Carpools ⁽¹⁾	982	652	522	358
Vanpools	19	0	10	0
Single Occ. ⁽²⁾	—	8198	—	4205
Violators	38	—	15	—
TOTAL	1118	8928	596	4605

PERSONS	PEAK PERIOD ⁽⁴⁾ 6:30 - 8:30 AM		PEAK HOUR 7:30 - 8:30 AM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	50	20	30	12
Buses	1015	2030	665	1050
Carpools ⁽¹⁾	2164	1400	1175	770
Vanpools	190	0	100	0
Single Occ. ⁽²⁾	—	8198	—	4205
Violators	38	—	15	—
TOTAL	3457	11648	1985	6037

RATES	PEAK PERIOD ⁽⁴⁾ 6:30 - 8:30 AM		PEAK HOUR 7:30 - 8:30 AM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
HOV Lane occupancy rate	3.1 persons/veh		3.3 persons/veh	
Mixed Flow occupancy rate	1.3 persons/veh		1.3 persons/veh	
Overall occupancy (incl. buses)	1.5 persons/veh		1.5 persons/veh	
Violation rate ⁽³⁾ (HOV Lane)	3.4 %		2.5 %	

NOTES: (1) Two or more occupants per vehicle.

(2) Mixed flow lanes only.

(3) Violation rate = $\frac{\text{no. of violators in HOV lane} \times 100\%}{\text{Total no. of vehicles in HOV lane}}$

(4) HOV lane in operation from 6:30 to 8:30 A.M.

(5) Observations conducted 04/08/03 at Route 131, East Blithdale Ave. I/C

MARIN-101

Richardson Bridge to Greenbrea I/C

Northbound - P.M.

Typical data for 2003 ⁽⁵⁾

VEHICLES	PEAK PERIOD ⁽⁴⁾ 4:30 - 7:00 PM		PEAK HOUR 4:30 - 5:30 PM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	24	4	13	0
Buses	101	67	48	27
Carpools ⁽¹⁾	1198	1767	576	732
Vanpools	14	7	6	5
Single Occ. ⁽²⁾	—	9970	—	4166
Violators	33	—	11	—
TOTAL	1370	11815	654	4930

PERSONS	PEAK PERIOD ⁽⁴⁾ 4:30 - 7:00 PM		PEAK HOUR 4:30 - 5:30 PM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	24	4	13	0
Buses	3535	2345	1680	945
Carpools ⁽¹⁾	2488	3706	1193	1542
Vanpools	140	70	60	50
Single Occ. ⁽²⁾	—	9970	—	4166
Violators	33	—	11	—
TOTAL	6220	16095	2957	6703

RATES	PEAK PERIOD ⁽⁴⁾ 4:30 - 7:00 PM		PEAK HOUR 4:30 - 5:30 PM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
HOV Lane occupancy rate	4.5 persons/veh		4.5 persons/veh	
Mixed Flow occupancy rate	1.4 persons/veh		1.4 persons/veh	
Overall occupancy (incl. buses)	1.7 persons/veh		1.7 persons/veh	
Violation rate ⁽³⁾ (HOV Lane)	2.4 %		1.7 %	

NOTES: (1) Two or more occupants per vehicle.

(2) Mixed flow lanes only.

(3) Violation rate = $\frac{\text{no. of violators in HOV lane} \times 100\%}{\text{Total no. of vehicles in HOV lane}}$

(4) HOV lane in operation from 4:30 to 7:00 P.M.

(5) Observations conducted 04/16/03 at Route 131, E. Blithdale Ave. I/C

MARIN-101

Violation History

Greenbrae I/C to Richardson Bay Bridge

Southbound

	DATE	PERIOD MONITORED	TOTAL HOVL VOLUME	VIOLATION RATE
A.M. PEAK	Tue Apr 8, 2003	6:30 - 8:30 AM	1118	3.4%
	Wed Mar 20, 2002	6:30 - 8:30 AM	1591	1.9%
	Wed Mar 28, 2001	6:30 - 8:30 AM	1495	2.3%
	Thu Mar 23, 2000	6:30 - 8:30 AM	1538	2.8%
	Wed Mar 17, 1999	6:30 - 8:30 AM	1394	2.3%
	Tue Mar 3, 1998	6:30 - 8:30 AM	1106	1.6%
	Tue Mar 11, 1997	6:30 - 8:30 AM	1367	2.4%
	Thu Oct 17, 1996	6:30 - 8:30 AM	1446	1.2%
	Tue Oct 31, 1995	6:30 - 8:30 AM	1389	3.7%
	Thu Oct 13, 1994	6:30 - 8:30 AM	1135	6.4%
	Wed Apr 21, 1993	6:30 - 8:30 AM	1325	7.2%
	Thu Mar 26, 1992	6:30 - 8:30 AM	1565	6.8%
	Wed May 22, 1991	6:30 - 8:30 AM	1337	6.1%
	Wed Apr 25, 1990	6:30 - 8:30 AM	1340	4.2%
	Wed Mar 15, 1989	6:30 - 8:30 AM	1517	10.7%
	Wed Sep 28, 1988	6:30 - 8:30 AM	466	16.5%

NOTES: (a) Morning period of operation from 6:30 to 8:30 AM.

MARIN-101

Violation History

Richardson Bay Bridge to Greenbrae I/C

Northbound

	DATE	PERIOD MONITORED	TOTAL HOVL VOLUME	VIOLATION RATE
P.M. PEAK	Wed Apr 16, 2003	4:30 - 7:00 PM	1370	2.4%
	Tue Sep 17, 2002	4:30 - 7:00 PM	1365	1.5%
	Tue Apr 3, 2001	4:30 - 7:00 PM	1544	3.9%
	Tue Oct 3, 2000	4:30 - 7:00 PM	1771	1.6%
	Tue Mar 16, 1999	4:30 - 7:00 PM	1719	1.9%
	Wed Apr 22, 1998	4:30 - 7:00 PM	1838	4.8%
	Wed Oct 1, 1997	4:30 - 7:00 PM	2217	5.4%
	Thu Oct 24, 1996	4:30 - 7:00 PM	1820	3.4%
	Tue Oct 24, 1995	4:30 - 7:00 PM	1779	3.9%
	Tue Apr 5, 1994	4:30 - 7:00 PM	2031	0.2%
	Tue Apr 20, 1993	4:30 - 7:00 PM	1516	13.5%
	Tue Apr 28, 1992	4:30 - 7:00 PM	1296	9.0%
	Tue Oct 1, 1991	4:30 - 6:30 PM	1197	7.9%
	Wed Apr 25, 1990	4:30 - 7:00 PM	1180	7.5%
	Tue Mar 21, 1989	4:30 - 7:00 PM	1988	6.6%
	Thu Sep 29, 1988	4:30 - 7:00 PM	646	20.4%

NOTES: (a) Evening period of operation from 4:30 to 7:00 PM.

MARIN-101

Route 37 to N. San Pedro Rd

Southbound - A.M.

Typical data for 2003 ⁽⁵⁾

VEHICLES	PEAK PERIOD ⁽⁴⁾ 6:30 - 8:30 AM		PEAK HOUR 6:30 - 7:30 AM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	31	4	15	2
Buses	37	36	16	18
Carpools ⁽¹⁾	2203	286	1282	143
Vanpools	13	0	3	0
Single Occ. ⁽²⁾	—	9598	—	4749
Violators	51	—	1	—
TOTAL	2335	9924	1317	4912

PERSONS	PEAK PERIOD ⁽⁴⁾ 6:30 - 8:30 AM		PEAK HOUR 6:30 - 7:30 AM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	31	4	15	2
Buses	1295	1260	560	630
Carpools ⁽¹⁾	4582	622	2685	314
Vanpools	130	0	30	0
Single Occ. ⁽²⁾	—	9598	—	4749
Violators	51	—	1	—
TOTAL	6089	11484	3291	5695

RATES	PEAK PERIOD ⁽⁴⁾ 6:30 - 8:30 AM		PEAK HOUR 6:30 - 7:30 AM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
HOV Lane occupancy rate	2.6 persons/veh		2.5 persons/veh	
Mixed Flow occupancy rate	1.2 persons/veh		1.2 persons/veh	
Overall occupancy (incl. buses)	1.4 persons/veh		1.4 persons/veh	
Violation rate ⁽³⁾ (HOV Lane)	2.2 %		0.1 %	

NOTES: (1) Two or more occupants per vehicle.

(2) Mixed flow lanes only.

(3) Violation rate = $\frac{\text{no. of violators in HOV lane} \times 100\%}{\text{Total no. of vehicles in HOV lane}}$

(4) HOV lane in operation from 6:30 to 8:30 A.M.

(5) Observations conducted 04/03/03 at Alameda Del Prado Dr. I/C

MARIN-101

N. San Pedro Rd to Route 37

Northbound - P.M.

Typical data for 2003 ⁽⁵⁾

VEHICLES	PEAK PERIOD ⁽⁴⁾ 4:30 - 7:00 PM		PEAK HOUR 4:30 - 5:30 PM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	68	16	25	10
Buses	59	39	24	16
Carpools ⁽¹⁾	1654	1303	782	451
Vanpools	10	4	7	1
Single Occ. ⁽²⁾	—	14774	—	6193
Violators	60	—	5	—
TOTAL	1851	16136	843	6671

PERSONS	PEAK PERIOD ⁽⁴⁾ 4:30 - 7:00 PM		PEAK HOUR 4:30 - 5:30 PM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
Motorcycles	68	16	25	10
Buses	2065	1365	840	560
Carpools ⁽¹⁾	3418	2812	1618	969
Vanpools	100	40	70	10
Single Occ. ⁽²⁾	—	14774	—	6193
Violators	60	—	5	—
TOTAL	5711	19007	2558	7742

RATES	PEAK PERIOD ⁽⁴⁾ 4:30 - 7:00 PM		PEAK HOUR 4:30 - 5:30 PM	
	HOV Lane	Mixed Flow Lanes	HOV Lane	Mixed Flow Lanes
HOV Lane occupancy rate	3.1 persons/veh		3.0 persons/veh	
Mixed Flow occupancy rate	1.2 persons/veh		1.2 persons/veh	
Overall occupancy (incl. buses)	1.4 persons/veh		1.4 persons/veh	
Violation rate ⁽³⁾ (HOV Lane)	3.2 %		0.6 %	

NOTES: (1) Two or more occupants per vehicle.

(2) Mixed flow lanes only.

(3) Violation rate = $\frac{\text{no. of violators in HOV lane} \times 100\%}{\text{Total no. of vehicles in HOV lane}}$

(4) HOV lane in operation from 4:30 to 7:00 P.M.

(5) Observations conducted 04/09/03 at the Manuel Freitas Truck Scale

MARIN-101

Violation History

Route 37 to N. San Pedro Road

Southbound

	DATE	PERIOD MONITORED	TOTAL HOVL VOLUME	VIOLATION RATE
A.M. PEAK	Thu Apr 3, 2003	6:30 - 8:30 AM	2335	2.2%
	Tue Mar 19, 2002	6:30 - 8:30 AM	2564	1.2%
	Wed Oct 31, 2001	6:30 - 8:30 AM	2520	1.4%
	Wed Mar 22, 2000	6:30 - 8:30 AM	2610	1.1%
	Thu Mar 18, 1999	6:30 - 8:30 AM	2256	1.8%
	Wed Mar 4, 1998	6:30 - 8:30 AM	2047	3.3%
	Wed Nov 5, 1997	6:30 - 8:30 AM	2690	5.1%
	Tue Nov 19, 1996	6:30 - 8:30 AM	2507	2.6%
	Wed Oct 25, 1995	6:30 - 8:30 AM	2609	4.3%
	Wed Mar 30, 1994	6:30 - 8:30 AM	1702	1.8%
	Tue Apr 27, 1993	6:30 - 8:30 AM	2042	4.8%
	Tue Mar 31, 1992	6:30 - 8:30 AM	1594	7.8%
	Thu Mar 7, 1991	6:45 - 8:30 AM	1423	6.3%
	Thu Apr 26, 1990	6:30 - 8:30 AM	1903	10.7%
	Wed Mar 15, 1989	6:30 - 8:30 AM	1767	10.5%
	Thu Sep 15, 1988	6:30 - 8:30 AM	597	36.7%

NOTES: (a) Morning period of operation from 6:30 to 8:30 AM.

MARIN-101

Violation History

N. San Pedro Road to Route 37

Northbound

P.M. PEAK

DATE	PERIOD MONITORED	TOTAL HOVL VOLUME	VIOLATION RATE
Wed Apr 9, 2003	4:30 - 7:00 PM	1851	3.2%
Thu Sep 19, 2002	4:30 - 7:00 PM	1552	2.6%
Tue Sep 18, 2001	4:30 - 7:00 PM	1580	1.1%
Tue Mar 21, 2000	4:30 - 7:00 PM	1921	2.7%
Thu Sep 16, 1999	4:30 - 7:00 PM	1841	4.0%
Tue Apr 7, 1998	4:30 - 7:00 PM	2147	2.4%
Thu Oct 2, 1997	4:30 - 7:00 PM	1867	3.2%
Thu Oct 17, 1996	4:30 - 7:00 PM	1983	3.9%
Wed Apr 19, 1995	4:30 - 7:00 PM	1817	0.3%
Thu Apr 7, 1994	4:30 - 7:00 PM	1233	0.9%
Wed Apr 21, 1993	4:30 - 7:00 PM	1599	7.9%
Wed Oct 7, 1992	4:30 - 6:45 PM	1718	7.6%
Wed Mar 6, 1991	4:30 - 6:00 PM	1647	8.2%
Thu Apr 26, 1990	4:30 - 7:00 PM	2576	9.3%
Wed Mar 15, 1989	4:30 - 7:00 PM	2066	8.7%
Wed Sep 28, 1988	4:30 - 7:00 PM	696	24.6%

NOTES: (a) Evening period of operation from 4:30 to 7:00 PM.